

## SPIN VALVE SENSOR WITH A CAPPING LAYER COMPRISING COBALT

### ABSTRACT OF THE DISCLOSURE

In one illustrative example of the invention, a spin valve sensor of a magnetic  
5 head has a sensor stack structure which includes a free layer structure and an antiparallel  
(AP) pinned layer structure separated by a spacer layer. A capping layer structure formed  
over the sensor stack structure includes a layer of cobalt (e.g. pure cobalt, oxidized  
cobalt, or cobalt-iron) as well as a layer of tantalum formed over it. Advantageously, the  
cobalt layer in the capping layer structure enhances the GMR and soft magnetic  
10 properties for thinner freelay structures while maintaining a desirable slightly negative  
magnetostriction.